

WHAT IS CLAIMED IS

1. A wireless communication terminal comprising:

antenna means for receiving signals based on plural wireless network standards;

5 transmitting/receiving means for receiving the signals from said antenna means;

switching means for switching the wireless network standards of the signals received by said transmitting/receiving means to one another;

10 reception level judging means for judging the reception level of each of the signals received by said transmitting/receiving means in the priority order of the wireless network standards from the highest-priority wireless network standard to the lowest-priority wireless network standard in the plural wireless network standards; and

15 control means for judging, on the basis of the judgment result of the reception level by said reception level judging means, whether it is possible to carry out communications based on any one of the plural wireless network standards, and controlling the switching operation of said switching means so that the communications based on the highest-priority wireless network standard can be carried out.

2. A wireless communication terminal comprising:

antenna means for receiving signals based on at least two wireless network standards;

25 transmitting/receiving means for receiving the signals from said antenna means;

switching means for switching the wireless network standards of the signals received by said transmitting/receiving means to one another;

first reception level judging means for judging the reception  
5 level of a signal which is received by said transmitting/receiving means and based on a first wireless network standard having the highest priority in the two wireless network standards;

second reception level judging means for judging the reception  
level of another signal which is received by said transmitting/receiving means  
10 and based on a second wireless network standard having a priority lower than the first wireless network standard; and

control means for judging, on the basis of the judgment result of the reception level by said first reception level judging means, whether it is possible to carry out communications based on the first wireless network  
15 standard, judging, on the basis of the judgment result of the reception level by said second reception level judging means, whether it is possible to carry out communications based on the second wireless network standard when it is judged that it is impossible to carry out the communications based on the first wireless network standard, and controlling the switching operation of  
20 said switching means so that communications based on a wireless network standard having the highest priority can be carried out.

3. The wireless communication terminal according to claim 2, wherein at least one of said antenna means and said transmitting/receiving means comprises two elements so that the signals based on the first and second  
25 wireless network standards can be received by said two elements,

respectively.

4. The wireless communication terminal according to claim 1, wherein said transmitting/receiving means includes an RF circuit and an MAC circuit.

5 5. The wireless communication terminal according to claim 2, wherein said transmitting/receiving means includes an RF circuit and an MAC circuit.

6. The wireless communication terminal according to claim 2, wherein said transmitting/receiving means includes an RF circuit and an MAC circuit, and at least one of said antenna means, said RF circuit and said MAC circuit comprises two elements so that the signals based on the first and second  
10 wireless network standards can be received by said two elements, respectively.

7. The wireless communication terminal according to claim 1, further comprising a timer for executing every set time the operation of said control means for judging whether it is possible to carry out the communications and  
15 controlling the switching operation of said switching means so that the communications based on the wireless network standard having the highest priority can be carried out.

8. The wireless communication terminal according to claim 2, further comprising a timer for executing every set time the operation of said control  
20 means for judging whether it is possible to carry out the communications and controlling the switching operation of said switching means so that the communications based on the wireless network standard having the highest priority can be carried out.

9. The wireless communication terminal according to claim 1, further  
25 comprising a transmission collision counter for counting the collision number

of transmission packets of the signals received by said transmitting/receiving means, wherein when a count value counted by said transmission collision counter exceeds a prescribed collision-number threshold value, said control means judges on the basis of the judgment result of the reception level by said reception level judging means whether it is possible to carry out communications based on another wireless network standard in the plural wireless network standards.

10. The wireless communication terminal according to claim 2, further comprising a transmission collision counter for counting the collision number of transmission packets of the signals received by said transmitting/receiving means, wherein when a count value counted by said transmission collision counter exceeds a prescribed collision-number threshold value, said control means judges on the basis of the judgment result of the reception level by said reception level judging means whether it is possible to carry out communications based on the second wireless network standard.

11. The wireless communication terminal according to claim 1, further comprising throughput calculating means for calculating a communication throughput of a signal received by said transmitting/receiving means, wherein said throughput calculating means calculates the throughput of the communications based on each of the plural wireless network standards and compares the throughputs thus calculated, and said control means controls the switching operation of said switching means so that a higher throughput is achievable.

12. The wireless communication terminal according to claim 2, further comprising throughput calculating means for calculating a communication

throughput of a signal received by said transmitting/receiving means, wherein said throughput calculating means calculates the throughput of the communications based on each of the two wireless network standards and compares the throughputs thus calculated, and said control means controls  
5 the switching operation of said switching means so that a higher throughput is achievable.

13. A wireless communication network system comprising the wireless communication terminal according to claim 1, and a wireless base station which is capable of making communications based on the plural wireless  
10 network standards with said wireless communication terminal, and communicates with said wireless communication terminal on the basis of one of the plural wireless network standards, wherein when a problem occurs in the communications based on one of the plural wireless network standards between said wireless base station and said wireless communication terminal,  
15 said wireless base station transmits to said wireless communication terminal a shift command for shifting to communications based on another wireless network standard, and when the problem can be overcome, said wireless base station transmits to said wireless communication terminal a return command for returning to the communications based on the one of wireless network  
20 standards.

14. A wireless communication network system comprising the wireless communication terminal according to claim 2, and a wireless base station which is capable of making communications based on the two wireless network standards with said wireless communication terminal, and  
25 communicates with said wireless communication terminal on the basis of one

of the two wireless network standards, wherein when a problem occurs in the communications based on one of the two wireless network standards between said wireless base station and said wireless communication terminal, said wireless base station transmits to said wireless communication terminal a shift command for shifting to communications based on the other wireless network standard, and when the problem can be overcome, said wireless base station transmits to said wireless communication terminal a return command for returning to the communications based on the one of two wireless network standards.

15. A wireless communication network system comprising the wireless communication terminal according to claim 1, a first wireless base station for carrying out communications based on one of the plural wireless network standards with said wireless communication terminal, and a second wireless base station for carrying out communications based on another wireless network standard of the plural wireless network standards with said wireless communication terminal, wherein when a problem occurs in communications based on the one wireless network standard with the wireless communication terminal, said first wireless base station transmits to said wireless communication terminal a shift command for shifting to the communications based on the another wireless network standard with said second wireless base station, and when the problem is overcome, said first wireless base station transmits to said second wireless base station a first return command for returning to the communications based on the one wireless network standard, and also upon receiving the first return command, said second wireless base station transmits to said wireless communication terminal a

second return command for returning to the communications based on the one wireless network standard with said first wireless base station.

16. A wireless communication network system comprising the wireless communication terminal according to claim 2, a first wireless base station for carrying out communications based on one of the two wireless network standards with said wireless communication terminal, and a second wireless base station for carrying out communications based on the other wireless network standard of the two wireless network standards with said wireless communication terminal, wherein when a problem occurs in communications based on the one wireless network standard with the wireless communication terminal, said first wireless base station transmits to said wireless communication terminal a shift command for shifting to the communications based on the other wireless network standard with said second wireless base station, and when the problem is overcome, said first wireless base station transmits to said second wireless base station a first return command for returning to the communications based on the one wireless network standard, and also upon receiving the first return command, said second wireless base station transmits to said wireless communication terminal a second return command for returning to the communications based on the one wireless network standard with said first wireless base station.

17. A wireless communication network system comprising a wireless communication terminal, and a wireless base station for carrying out communications based on plural wireless network standards with said wireless communication terminal,

wherein said wireless base station transmits to said wireless

communication terminal the throughput of communications based on each wireless network standard, or the number of wireless communication terminals carrying out communications based on each wireless network standard and the throughput of the communications based on each wireless network standard, and said wireless communication terminal has means for notifying, to the user of said wireless communication terminal, the throughput of communications based on each wireless network standard thus received or the number of wireless communication terminals carrying out communications based on each wireless network standard and the throughput of the communications based on each wireless network standard thus received, said user judging the shift from the wireless network standard of the communications currently carried out to another wireless network standard.

18. A wireless base station for communicating with a wireless communication terminal on the basis of signals based on plural wireless network standards, comprising:

antenna means for carrying out communications on the basis of signals based on at least two wireless network standards;

transmitting/receiving means for transmitting/receiving the signals by said antenna means; and

means for judging the shift from the wireless network standard of communications carried out to another wireless network standard on the basis of the throughput of communications based on each wireless network standard through said transmitting/receiving means or on the basis of the number of wireless communication terminals carrying out the



communications based on each wireless network standard through said transmitting/receiving means and the throughput of communications based on each wireless network standard.

19. An automatic matching method for wireless network standards,  
5 comprising the steps of:

receiving signals based on plural wireless network standards  
by antenna means;

judging the reception level of signals in transmitting/receiving  
means connected to the antenna means in the priority order from the highest  
10 wireless network standard to the lowest wireless network standard in the  
plural wireless network standards;

judging on the basis of a judgment result of the reception level  
whether it is possible to carry out communications based any one of the  
plural wireless network standards; and

15 controlling said transmitting/receiving means so that  
communications based on a wireless network standard having higher priority  
can carry out.